

U.S. Patent Application Serial No. 10/085,034
Amendment filed December 8, 2006
Reply to OA dated September 6, 2006

AMENDMENTS TO THE CLAIMS:

Claims 1 and 3-18 are presented for examination. Claim 2 has been cancelled. Claims 1, 3, 10, and 11 have been amended.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A wireless LAN system comprising:

a plurality of wireless stations; each station having a means for switching a frequency channel from a channel being used to a channel identified by a switching request packet and

a switching apparatus for switching a frequency channel used between stations for communication, the switching apparatus having a means for selecting a frequency channel, and a means for sending a switching request packet that identifies the selected frequency channel to the stations upon expiration of a polling period, ~~each station having a means for switching a frequency channel from the channel being used to the channel identified by the switching request packet~~

wherein the means for selecting a frequency channel selects a frequency channel based on line status information regarding total number of packets and number of error packets.

Claim 2 (Cancelled):

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Claim 3 (Currently Amended): ~~A system as claimed in claim 2;~~ A wireless LAN system comprising:

a plurality of wireless stations; each station having a means for switching a frequency channel from a channel being used to a channel identified by a switching request packet; each station having an agent for sending a line status information to a manager in a switching apparatus; and

the switching apparatus for switching a frequency channel used between stations for communication; the switching apparatus having a means for selecting a frequency channel and a means for sending a switching request packet that identifies the selected frequency channel to the stations; the switching apparatus having a manager for collecting a line status information indicating the varying status of lines between the stations, wherein said line status information includes information of the total number of packets, and the number of error packets[[,]]; and, the switching apparatus having a means for judging whether a frequency channel should be switched based on the line status information;

wherein the selecting means in the switching apparatus selects the frequency channel based on a judgment of the judging means.

Claim 4 (Previously Presented): A system as claimed in claim 3, wherein the manager in the switching apparatus communicates with the agent in the station based on Simple Network Management Protocol.

Claim 5 (Currently Amended): A system as claimed in ~~claim 2~~ claim 3, wherein the selecting means in the switching apparatus selects a frequency channel so that a polarized wave of the frequency channel to be selected does not overlap polarized waves of neighboring frequency channels.

Claim 6 (Currently Amended): A system as claimed in ~~claim 2~~ claim 3, wherein the station further comprises a switching control means for controlling a switching of frequency channels; the switching control means sends a switching confirmation packet to the stations; the switching control means receives a switching confirmation packet from stations that switch frequency channels from the channel being used to the channel identified by the switching request packet in response to the switching request packet sent by the switching apparatus; when the switching control means does not receive a switching confirmation packet from a station, the switching control means resets the frequency channel to a frequency channel that was being used prior to receiving the switching request packet; and, in order to report a switching result, the switching control means sends a response packet to the switching apparatus indicating whether a switching confirmation packet has been received from each station.

Claim 7 (Previously Presented): A system as claimed in claim 6, wherein when at least one of the switching results received from the stations indicates an unsuccessful frequency

channel switch, the switching control means in the switching apparatus sends a switching request packet to all of the stations so that each station is reset to the frequency channel that was being used prior to receiving a switching request packet.

Claim 8 (Currently Amended): A system as claimed in ~~claim 2~~ claim 3, wherein the stations consist of one parent-station and a plurality of child-stations; the agent in the parent-station and each child-station calculates a percentage value of the number of success packets in relation to the total number of packets for each wireless link between the parent-station and each child-station, and sends a percentage value for each wireless link to the switching apparatus; the manager in the switching apparatus receives the percentage value; and the switching judgment means judges based on the number of wireless links for which the percentage value is smaller than a threshold whether a frequency channel should be switched.

Claim 9 (Previously Presented): A system as claimed in claim 8, wherein the switching judgment means in the switching apparatus dynamically modifies the threshold based on the number of switching times per unit time.

Claim 10 (Currently Amended): A method for a switching apparatus switching frequency channels used for communication between stations for a wireless LAN, the method

comprising:

- (1) the switching apparatus selecting a frequency channel to be used based on line status information including total number of packets and number of error packets;
- (2) the switching apparatus sending a switching request packet to the stations that identifies the selected frequency channel upon expiration of a polling period; and
- (3) the station receiving the switching request packet, and switching from a frequency channel being used to the frequency channel identified by the switching request packet.

Claim 11 (Currently Amended): A method for a switching apparatus switching frequency channels used for communication between stations for a wireless LAN, the method comprising:

- (1) the switching apparatus selecting a frequency channel to be used based on line status information including total number of packets and number of error packets;
- (2) the switching apparatus sending a switching request packet that identifies the selected frequency channel to the stations;
- (3) the stations receiving the switching request packet, and switching from a frequency channel being used to the frequency channel identified by the switching request packet;
- (4) the switching apparatus collecting a line status information indicating the varying status of lines between the stations, and judging from the line status information whether a frequency channel should be switched;

(5) the station sending the line status information to the switching apparatus; and,

(6) the switching apparatus in step (1) selecting the frequency channel based on a judgment of the judging step (4).

Claim 12 (Original): A method as claimed in claim 11, wherein said line status information includes information of the total number of packets and the number of error packets.

Claim 13 (Original): A method as claimed in claim 12, wherein said switching apparatus communicates with said station based on Simple Network Management Protocol.

Claim 14 (Previously Presented): A method as claimed in claim 11, wherein the selecting step (1) in the switching apparatus selects a frequency channel so that a polarized wave of the frequency channel to be selected does not overlap a polarized wave of other neighboring frequency channels.

Claim 15 (Previously Presented): A method as claimed in claim 11, wherein the method further comprises,

(7) a switching control step for controlling a switching of frequency channels; the stations sending each other a switching confirmation packet; the stations receiving a switching

confirmation packet from stations that switch frequency channels from the channel being used to the channel identified by the switching request packet received from the switching apparatus; when the switching confirmation packet is not received from a station, resetting the frequency channel to a frequency channel that was being used prior to receiving the switching request packet; and, in order to report a switching result, sending a response packet to the switching apparatus indicating whether the switching confirmation packet has been received from each station.

Claim 16 (Previously Presented): A method as claimed in claim 15, wherein when at least one of the switching results received from the stations indicates an unsuccessful frequency channel switch, the switching control step (7) sends a switching request packet to all of the stations so that each station is reset to the frequency channel that was being used prior to receiving the switching request packet.

Claim 17 (Previously Presented): A method as claimed in claim 11, wherein the stations consist of one parent-station and a plurality of child-stations; the parent-station and the child-stations calculate a percentage value per unit time of the number of success packets in relation to the total number of packets for each wireless link between the parent-station and each child-station; the line status information sending step (5) sends a percentage value for each wireless link to the switching apparatus; the switching apparatus receives percentage value; and the

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switching judgment step judges based on the number of wireless links for which the percentage value is smaller than a threshold whether a frequency channel should be switched.

Claim 18 (Original): A method as claimed in claim 17, wherein said switching judgment step in said switching apparatus dynamically modifies said threshold based on the number of switching times per unit time.